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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/660,020	09/11/2003	Jeffrey T. Ranney	21401-96	5917

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DAVIS WRIGHT TREMAINE, LLP
2600 CENTURY SQUARE
1501 FOURTH AVENUE
SEATTLE, WA 98101-1688

EXAMINER	
MENON, KRISHNAN S	

ART UNIT	PAPER NUMBER
1723	

DATE MAILED: 09/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/660,020	RANNEY, JEFFREY T.	
	Examiner	Art Unit	
	Krishnan S Menon	1723	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 September 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claims 1-9 are pending.

Election/Restrictions

Applicant's election without traverse of claims 1-9 in the reply filed on 9/1/04 is acknowledged.

In response to the species election requirement, Applicant indicated that the election of the species is based on Fig 1, which represents all claims from 1-9. Therefore, it is assumed that species 'sugar processing to ethanol' and 'sugar processing to sweetener' are considered obvious equivalents.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 5-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 5 recites the limitation "chromatographic unit" in line 2. There is insufficient antecedent basis for this limitation in the claim. Examiner assumes that claim 5 depends from claim 2, which introduces the chromatographic unit, for examination purposes.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1, 8 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Bento et al (US 5,250,182).

Bento teaches a nanofiltration system comprising a filtration chamber with an input and output and a nanofiltration membrane, which allows passage of acids and blocks passage of sugars – see 28, Fig 3 and abstract. The system further comprises an acid processing system (33) to further concentrate the acids as in claims 8 and 9.

2. Claims 1-3,5 and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Kwok et al (US 5,554,227).

Claim 1: Kwok teaches nanofiltration system in col 5 lines 17-26. However, Kwok does not specify if the acids would pass through the membrane or not. However, this would be inherent. Under the principles of inherency, if a prior art device, in its normal and usual operation, would necessarily perform the method claimed, then the method claimed will be considered to be anticipated by the prior art device. When the prior art device is the same as a device described in the specification for carrying out the claimed method, it can be assumed the device will inherently perform the claimed process. In re King, 801 F.2d 1324,

231 USPQ 136 (Fed. Cir. 1986). In this case inherency is established by the ref Bento as described in the rejection of claim 1 above.

Claim 2: the system further comprises a chromatographic unit: see fig 2, col 5 lines 16-26, col 5 lines 50-66 and claim 3. What the chromatography unit does, such as performing partial separation, etc., is functional. While features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function. In re Schreiber, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997) (The absence of a disclosure in a prior art reference relating to function did not defeat the Board's finding of anticipation of claimed apparatus because the limitations at issue were found to be inherent in the prior art reference); see also In re Swinehart, 439 F.2d 210, 212-13, 169 USPQ 226, 228-29 (CCPA 1971); In re Danly, 263 F.2d 844, 847, 120 USPQ 528, 531 (CCPA 1959). "[A]pparatus claims cover what a device is, not what a device does." Hewlett-Packard Co. v. Bausch & Lomb Inc., 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990)

Claim 3: feedback line in the system – see fig 2 line28, or 31.

Claim 5: sugar processing system – crystallizer 26 coupled to the chromatographic unit 25 or 32 (line 35 from unit 32 goes to the crystallizer 22 – see in combination with fig 1.

Claim 7: sugar processing processes sugar to sweetener – crystallized sugar in fig 2. Also this is product by process, "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is

based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re *Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kwok'227 in view of Bento'182.

Kwok teaches all the limitations of claims 1 and 2 as follows: Claim 1: Kwok teaches nanofiltration system in col 5 lines 17-26. However, Kwok does not specify if the acids would pass through the membrane or not. However, this would be inherent. Under the principles of inherency, if a prior art device, in its normal and usual operation, would necessarily perform the method claimed, then the method claimed will be considered to be anticipated by the prior art device. When the prior art device is the same as a device described in the specification for carrying out the claimed method, it can be assumed the device will inherently perform the claimed process. In re King, 801 F.2d 1324, 231 USPQ 136 (Fed.

Cir. 1986). In this case inherency is established by the ref Bento as described in the first rejection of claim 1 above. Claim 2: the system further comprises a chromatographic unit: see fig 2, col 5 lines 16-26, col 5 lines 50-66 and claim 3.

Claim 4: Kwok also teaches the further-added limitation of claim 4, a pre-filter nanofiltration membrane. However, Kwok does not teach the-is membrane as allowing the passage of the acids. Bento teaches a nanofiltration membrane which allows the passage of acids and prevents the passage of sugary material (see fig 3). It would be obvious to one of ordinary skill in the art at the time of invention to use the teaching of Bento in the teaching of Kwok for separating high sugars from low molecular weight acids as taught by Bento (see abstract) in sugar-acid separation.

Claim 6: Kwok teaches all the limitations of claim 5, ie., sugar processing system – crystallizer 26 coupled to the chromatographic unit 25 or 32 (line 35 from unit 32 goes to the crystallizer 22 – see in combination with fig 1. Kwok does not teach a fermentation/distillation system to process the sugars to ethanol. However, this would be an obvious equivalent of the sugar processing system by election by the applicant. Also, Bento teaches a fermentation/distillation system to process sugars to alcohol. It would be obvious to one of ordinary skill in the art at the time of invention to use the teaching of Bento in the teaching of Kwok to have a fermentation/distillation system for sugar processing as taught by Bento for making ethanol as taught by Bento.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Heikkila et al (US 2004/0060868 A1), which is the English language equivalent and claims priority over PCT/FI01/01155, which was published as WO 02/53781 (a 102(b) ref), teaches the process of separating sugars from low molecular weight components using nanofiltration and chromatography.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Krishnan S Menon whose telephone number is 571-272-1143. The examiner can normally be reached on 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L Walker can be reached on 571-272-1151. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Krishnan Menon
Patent Examiner

Walker
W. L. WALKER
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700